REMARKS

In the Office Action dated November 14, 2005, claims 1-2, 4-10, and 12-24 are pending. Claims 1, 10, and 17 are independent claims from which all other claims depend therefrom. Claims 1, 10, 17, and 20 are herein amended. Note that claims 1 and 17 are not amended for patentability reasons, but rather for clarification reasons and/or informality reasons.

Objection of claim 17

Claim 17 stands objected to for informality reasons. The Office Action suggests replacing the term "containing" with "comprising". Claim 17 is herein amended as such.

Rejection of claims 1-2, 4, 7, and 9 under 35 U.S.C. 103(a)

Claims 1-2, 4, 7, and 9 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Bachmann et al. (U.S. Pat. No. 6,625,254) in view of Barrett (U.S. Pat. No. 6,674,838).

Amended claim 1 recites a sealed electron beam source for an imaging tube that includes a source housing with a non-apertured source window that forms a sealed structure with the source housing. The source window separates a source interior from an external low-pressure cavity. The source electrode emits electrons through the source window to a target external to the source housing. The target is internal to the imaging tube. The source window includes feedthroughs for a coolant to flow therein and absorb heat from the source window.

Bachmann discloses x-ray device 20 that has an x-ray tube 21 with a cathode 23 therein. The cathode emits electrons that are directed at a window 3. The window 3 is attached to a liquid metal circulation system 22. Interaction between the electrons and the liquid metal causes x-ray emission that issues through the window 3 and an x-ray emission window 29.

The Office Action states that Bachmann discloses a source housing that separates a source interior from an external cavity and refers to the x-ray tube 21 of Bachmann. Applicants, respectfully, traverse. The x-ray tube 21, although may be

considered a source housing, does not separate a source interior from an external cavity. The Office Action, in paragraph 15, admits that Bachmann fails to disclose a cavity containing a source and a target. The x-ray tube 21 encloses the cathode 23 and thus separates the interior of the x-ray tube 21 from the exterior of the x-ray tube 21. The exterior of the x-ray tube 21 is not a cavity, and is especially not a low-pressure cavity. The exterior of the x-ray tube 21 is understood and appears to be simply the exterior of the x-ray device 20, which is not at low-pressure, but rather normal atmospheric pressure, since it is not enclosed.

Applicants also point out that Bachmann fails to teach or suggest a sealed source that emits electrons through a source window to a target that is external to the source and internal to the imaging or x-ray tube, as claimed. The sealed source of Bachmann is an x-ray tube. In Bachmann electrons are directed at the circulation system 22, which is external to the x-ray tube or source 21.

The Office Action states that Bachmann fails to disclose a sealed structure, wherein a source window comprises feedthroughs. Applicants agree. However, the Office Action states that Barrett provides such disclosure. Applicants, respectfully, traverse. Note that Applicants provided arguments in the Response of September 21, 2005 why Barrett fails to provide the stated structure, window, and feedthroughs. The arguments are and remain valid and are reiterated below.

Barrett discloses an x-ray tube 10 having a cathode assembly 52 and an anode assembly 108 that is external and separate therefrom. The cathode assembly 52 includes a filament 56 that is attached to a support structure 56A. Electrons are emitted from the filament 56 through an aperture 60 to impinge upon a rotating target 112 on an anode 106 of the anode assembly 108.

The Office Actions state that Barrett discloses a source window 58. Applicants submit that item 58 is not a source window, but rather is an aperture shield that has the aperture 60 therethrough. Also, clearly the aperture 60 is not a non-apertured source window as claimed.

The Office Actions then state that item 58 forms a sealed structure with a source housing and refers to col. 5, lines 62-67 for such reliance. Applicants submit that in col. 5, lines 62-67 Barrett states that a seal is formed between the aperture shield 58 and the support structure 56A. Coupling or forming a seal between two items does not necessarily mean that the two items are sealed or that the two items together form a sealed structure that separates an interior cavity and an external cavity. In Barrett a seal is merely used between two parts, the parts do not form a seal between two cavities. In close review of Figure 1 of Barrett one can see that the internal cavity of the cathode assembly 52 is not sealed from the cavity in which the anode assembly is disposed. This is primarily due to the aperture 60, which provides an open passage between the cavities. Besides, Applicants submit that an item that has an aperture cannot form a sealed structure. A sealed structure is one without openings, that is closed, and is one that does not allow fluids, such as liquids or gases, to pass therethrough. Claim 1 does not recite that a seal is coupled between the source housing and the source window, but rather states that the source window forms a sealed structure with the source housing.

In addition, since Barrett fails to disclose a non-apertured source window that forms a sealed structure with a source housing, Barrett also fails to disclose such a window having feedthroughs as claimed.

Thus, Barrett and Bachmann fail to teach or suggest each and every element of claim 1. Referring to MPEP 706.02(j) and 2143, to establish a *prima facie* case of obviousness the prior art reference(s) must teach or suggest all the claim limitations. See *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Therefore, claim 1 is novel, nonobvious, and is in a condition for allowance. Since claims 2, 4, 7, and 9 depend from claim 1, they too are also novel, nonobvious, and are in a condition for allowance for at least the same reasons.

Besides, the combination of Bachmann and Barrett do not allow one to arrive at the present invention. There has been no motivation provided to combine the stated references and to perform the modifications needed to arrive at the present invention. To assert otherwise would be to take Official Notice without providing

concrete evidence and/or to use improper hindsight reconstruction in view of the present application. Applicants are aware that hindsight reasoning is proper so long as it takes into account only knowledge which was within the level of ordinary skill at the time of the claimed invention was made and does not include knowledge gleaned only from the Applicants' disclosure. Applicants believe that to arrive at a conclusion of obviousness, especially in view of the above relied upon references, can only be made through the gleaning of knowledge from Applicants' disclosure. It is never appropriate to rely solely on common knowledge in the art without evidentiary support in the record as the principal evidence upon which a rejection was based. See *In re Zurko*, 258 F.3d at 1386, 59USPQ2d at 1697 (Fed. Cir. 2001).

With respect to claim 7, the Office Action states that Bachmann would necessarily have a variable potential (on and off). Applicants have submitted that no matter how the term "variable potential" is defined, clearly it does not mean the ability to simply turn a device on and off. Applicants have defined the term "variable" to denote that it is subject to change, that it has multiple possible potentials, or that it has a potential that varies within a given range, see *Webster's Third New International Dictionary* and elsewhere. This is not taught or suggested by Bachmann. This limitation is also not taught or suggested by Barrett.

In addition, Applicants submit that if extrinsic reference sources evidence more than one definition for a term, the intrinsic record must be consulted to identify which of the different possible definitions is most consistent with Applicants' use of the terms. See *Brookhill-Wilk I*, 334 F.3d at 1300, 67 USPQ2d at 1137 (Fed. Cir. 2003). Intrinsic evidence includes the claims, the specification, and the prosecution history. Extrinsic evidence includes dictionaries. Extrinsic evidence is turned to only when the intrinsic evidence is insufficient to establish the clear meaning of the asserted claim. *Zodiac Pool Care Inc. v. Hoffinger Indus. Inc.*, 206 F. 3d 1408, 1414, 54 USPq2d 1141, 1145 (Fed. Cir. 2000) and *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582-84, 39 USPQ2d 1573, 1576-78 (Fed. Cir. 1996). Thus, the intrinsic record includes, not just the application, but also the intended

interpretations and other related descriptions provided by the Applicants in the prosecution history.

The prosecution history is often most probative of claim term meaning. Applicants submit that the Examiner should consider the application's prosecution history in determining the meaning and scope of claim terms. The history contains the complete record of all of the proceedings before the Patent and Trademark Office, including any express representations made by the Applicants regarding the scope of the claims. As such, the record before the Patent and Trademark Office is often of critical significance in determining the clearest meaning of the claims. See *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 980, 34 USPQ2d 1321, 1330 (Fed. Cir. 1995).

Applicants submit that in interpreting the term "variable" that the Applicants clearly did not intend such term to refer to simply "on" and "off" states. Applicants have expressly submitted herein and throughout the prosecution history the appropriate definition intended. Thus, to suggest a broad reasonable interpretation of the term "variable" to be disclosed by a system that may be activated or deactivated, as can most any system, would be inconsistent with the prosecution history and the present application as a whole. Such an interpretation is simply unreasonable and improper.

In addition, claims terms ought to be construed in view of the intrinsic evidence, which is the primary source of claim interpretation. See *Phillips v. AWH Corp.* No. 03-1269, 75 USPQ2d 1321 (Fed. Cir. 2005). The intrinsic record clearly provides for the intended meaning of the claim terms. Therefore, one cannot deem the definitions of the term "variable" other than as the Applicants have unequivocally pronounced. Thus, claim 7 is further novel and nonobvious for the above-stated reasons.

The Office Action takes Official Notice with regards to the limitation of claim 9. Ordinarily, there must be some form of evidence in the record to support an assertion of common knowledge. General conclusions concerning what is "basic knowledge" or "common sense" to one of ordinary skill in the art without specific

factual findings and some concrete evidence in the record to support these findings will not support an obviousness rejection. *In re Lee*, 277 F.3d at 1344-45, 61 USPQ2d at 1434-35 (Fed. Cir. 2002). The Examiner must provide specific technical and scientific reasoning to support his or her conclusion of common knowledge. *In re Soli*, 317 F.2d at 946, 37 USPQ at 801 (CCPA 1963). Applicants submit that no specific factual findings or concrete evidence has been put forth nor has any specific technical reasoning been put forth to support the Official Notice taken. Also, if Applicants challenge a factual assertion, as Applicants do herein, as not properly officially noticed or not properly based upon common knowledge, the Examiner must support the finding with adequate evidence. See 37 CFR 1.104(c)(2).

Rejection of claims 5, 6, 8, and 22 under 35 U.S.C. 103(a)

Claim 5 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Bachmann and Barrett as applied to claim 1 and further in view of Beland (U.S. Pat. No. 5,241,260). Claim 6 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Bachmann and Barrett and further in view of Nakamura et al. (U.S. Pat. No. 5,517,545). Claims 8 and 22 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Bachmann and Barrett as applied to claim 1 above, and further in view of Matsushita et al. (U.S. Pat. 6,526,122).

Applicants submit that since claims 5, 6, 8, and 22 depend from allowable claim 1, that they are in a condition for allowance for at least the same reasons.

Rejection of claims 10, 12, 15, 16, and 21 under 35 U.S.C. 103(a)

Claims 10, 12, 15-16, and 21 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Bachmann and Barrett and further in view of Yamaguchi (JP 54151384).

Claim 10 is similar to claim 1 and recites an imaging tube that includes a rotating target with a third voltage potential that decelerates electrons to generate x-rays within the imaging tube. A sealed electron beam source is external, separate, and sealed from the target and separates a source interior from a low-pressure cavity, which contains the rotating target. The sealed electron beam source includes

a source housing. The source housing has a source window with a first voltage potential, that is approximately equal to the third voltage potential, and a source electrode. The source electrode has a second voltage potential and generates and emits electrons through the source window to the target.

As stated above, Bachmann and Barrett fail to teach or suggest a sealed electron beam source that separates a source interior from a low-pressure cavity. In addition, Bachmann and Barrett also fail to teach or suggest the stated electron beam source that is external, separate, and sealed from a rotating target that is located within the low-pressure cavity.

The Office Action admits that Bachmann fails to disclose a rotating target that is within a low-pressure cavity. Applicants submit that Bachmann fails to disclose a rotating target. The Office Action then states that Barrett provides such disclosure. Applicants submit that although Barrett may disclose a rotating target within a low-pressure cavity, Barrett fails, like Bachmann to disclose the sealed and separated beam source as claimed.

Applicants also submit that it is unclear how the rotating target of Barrett would be combined with the x-ray device of Bachmann. Applicants are unsure whether the Examiner is suggesting that the rotating target of Barrett be internally or externally combined with and in relation to the x-ray tube of Bachmann. The inclusion of a rotating target in the x-ray tube of Bachmann would again result in an unsealed and non-separated source. If externally utilized, Applicants submit that it is unclear how the target would be incorporated or how the x-ray device would function, especially since the circulation system 22 of Bachmann is external to the x-ray tube 21 and is not in a low-pressure cavity.

Yamaguchi, like Bachmann and Barrett, also fails to teach or suggest the novel sealed beam source arrangement claimed. In Yamaguchi, electrons are emitted from a cathode through an open hole 25 in a hood 21 to a target 17. The cathode is not sealed from the target 17.

Thus, claim 10 is novel, nonobvious, and is in a condition for allowance for the above stated reasons. Also, since claims 12, 15-16, and 21 depend from claim 10, they too are novel, nonobvious, and are in a condition for allowance for at least the same reasons.

Rejection of claims 13-14 under 35 U.S.C. 103(a)

Claims 13-14 stand rejected under 35 U.S.C. 103(A) as being unpatentable over Bachmann, Barrett, and Yamaguchi as applied to claim 10 and further in view of Matsushita.

Applicants submit that since claims 13-14 depend from allowable claim 10, that they too are novel, nonobvious, and are in a condition for allowance.

Matsushita, like Barrett and Yamaguchi, fails to provide a sealed electron beam source. The electron gun 50 of Matsushita has an openings 25a, 71a, and 72a, like the aperture 60 of Barrett and the hole 25 of Yamaguchi. The cavity around the target 32 of Matsushita is open to the cavity around the cathode 73. Thus, Matsushita fails to teach or suggest a low-pressure cavity defined by a sealed electron beam source or the same exhausted or filled with a low-pressure gas. Matsushita also fails to teach or suggest a source window that has a voltage potential that is the same as a rotating target. Thus, claims 13-14 are further novel and nonobvious for above-stated reasons.

Applicants also submit that not only do the stated references fail to teach or suggest several of the claimed limitations, but to combine and modify so many references is far reaching and clearly supports the argument that it would not have been obvious to perform such combinations and modifications.

Rejection of claims 17-20 under 35 U.S.C. 103(a)

Claims 17-20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Bachmann in view of Barrett and Yamamura (U.S. Pat. No. 4,188,558).

The Office Action states that Bachmann fails to teach the limitations of forming a cavity containing a source and a target and the filling of the cavity with a gas. Applicants agree. Applicants submit that Bachmann also fails to teach or

suggest the sealing of a source housing from an external low-pressure cavity that is within an imaging tube. Applicants have shown above that neither Bachmann or Barrett teach or suggest the stated limitations.

Yamamura also fails to teach or suggest a sealed source housing. The cathode 6 and the anode 5 of Yamamura are contained within the same envelope 5. There is not a separate sealed source housing for the cathode 6 with respect to the anode 5. Thus, Yamamura, like Bachmann and Barrett, also fails to teach or suggest a cavity having a sealed source housing and an anode.

Thus, claim 17 is also novel, nonobvious, and is in a condition for allowance. Also, since claims 18-20 depend from claim 17, they too are novel, nonobvious, and are in a condition for allowance for at least the same reasons.

Rejection of claims 23-24 under 35 U.S.C. 103(a)

Claim 23 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Bachmann, Barrett, and Yamaguchi and further in view of Koller (U.S. Pat. 6,438208). Claim 24 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Bachmann, Barrett, Yamaguchi, and Koller and further in view of Richardson (U.S. Pat. No. 6,529,579).

Applicants submit that since claims 23-24 depend from allowable claim 10, that they too are novel, nonobvious, and are in a condition for allowance for at least the same reasons.

Claim 24 recites the limitations of the source window having feedthroughs, which are coupled to coolant channels within a coolant channel housing. Applicants submit that since none of the references teach or suggest a source window as claimed, that none of the references teach or suggest such a source window having feedthroughs as claimed. Koller and Richardson, like Bachmann, Barrett, and Yamaguchi fail to disclose a source window of a sealed electron beam source. Koller and Richardson fail to disclose a source window of any kind. In Koller electrons are emitted from an electron source 106 within a cavity to impinge upon an anode 108. In Richardson electrons are also emitted through a single cavity and through a

deflection device 110 to an anode 108. Notice that the x-ray windows 200 and 112 of Koller and Richardson are not source windows of a sealed electron beam source for which electrons pass as claimed, but rather are x-ray windows of an x-ray device for which x-rays pass. Thus, claims 23-24 are further novel and nonobvious for the above-stated reasons.

Applicants again submit that not only do the stated references fail to teach or suggest several of the claimed limitations, but to combine and modify so many references is far reaching and clearly supports the argument that it would not have been obvious to perform such combinations and modifications.

In light of the amendments and remarks, Applicants submit that all of the objections and rejections are now overcome. The Applicants have added no new matter to the application by these amendments. The application is now in condition for allowance and expeditious notice thereof is earnestly solicited. Should the Examiner have any questions or comments, the Examiner is respectfully requested to contact the undersigned attorney.

The Commissioner is hereby authorized to charge any additional fees or credit any overpayment to Deposit Account 50-0476.

Respectfully submitted,

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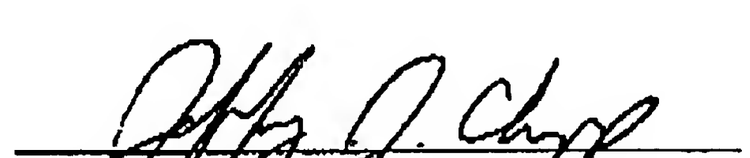

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